

BEST AVAILABLE COPYApplication No.: 10/810,634Docket No.: 2336-256**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) A method for separating a sapphire wafer serving as a substrate, on which semiconductor elements are formed, into unit chips, comprising the steps of:

(a) grinding a rear surface of the sapphire wafer so that the sapphire wafer has a designated thickness;

(b) lapping the rear surface of the ground sapphire wafer so that the sapphire wafer has a designated thickness;

(c) dry-etching the rear surface of the lapped sapphire wafer so that the sapphire wafer has a uniform thickness; and

(d) scribing the rear surface of the dry-etched sapphire wafer.

2. (original) The method as set forth in claim 1, wherein the step (c) is performed by an RIE (Reactive Ion Etching) method.

3. (original) The method as set forth in claim 1, wherein the step (c) is performed for 50 seconds or more.

4. (original) The method as set forth in claim 1, wherein the sapphire wafer is dry-etched by 800Å or more in the step (c).

5. (original) The method as set forth in claim 1, wherein an RF bias voltage of at

BEST AVAILABLE COPY**Application No.: 10/810,634****Docket No.: 2336-256**

most 26W is imposed on the sapphire wafer in the step (c).

6. (new) A method of separating a sapphire wafer, on which semiconductor elements are formed, into unit chips, said method comprising the steps of:

(a) grinding a rear surface of the sapphire wafer so that the sapphire wafer has a first designated thickness;

(b) lapping the rear surface of the ground sapphire wafer so that the sapphire wafer has a second designated thickness smaller than the first designated thickness;

(c) dry-etching the rear surface of the lapped sapphire wafer so that the sapphire wafer has a uniform thickness and a processing stress of the rear surface of the dry-etched sapphire wafer is maintained at a designated level; and

(d) scribing the rear surface of the dry-etched sapphire wafer.

7. (new) The method as set forth in claim 6, wherein step (c) is performed by an RIE (Reactive Ion Etching) method.

8. (new) The method as set forth in claim 6, wherein step (c) is performed for 50 seconds or more.

9. (new) The method as set forth in claim 6, wherein the sapphire wafer is dry-etched by 800Å or more in step (c).

10. (new) The method as set forth in claim 6, wherein an RF bias voltage of at most 26W is imposed on the sapphire wafer in step (c).

11. (new) The method as set forth in claim 6, wherein the processing stress of the rear surface of the dry-etched sapphire wafer is higher than a processing stress obtainable by a polishing

BEST AVAILABLE COPY**Application No.: 10/810,634****Docket No.: 2336-256**

process, thereby facilitating cutting of said rear surface of the dry-etched sapphire wafer with a diamond tip in said scribing step.

12. (new) The method as set forth in claim 11, wherein said dry-etching is performed immediately after said lapping without a polishing process between said lapping and said dry-etching.

13. (new) The method as set forth in claim 11, wherein
after said lapping, the rear surface of said lapped sapphire wafer includes at least one scratch; and
said dry-etching is performed to reduce a depth of said at least one scratch, without completely removing said at least one scratch.

14. (new) The method as set forth in claim 13, wherein
after said lapping, the rear surface of said lapped sapphire wafer includes at least one scratch; and
said dry-etching is performed to change said at least one scratch to a shallower scratch having a blunter shape, without completely removing said at least one scratch.

15. (new) A method of separating a sapphire wafer, on which semiconductor elements are formed, into unit chips, said method comprising the steps of:

(a) grinding a rear surface of the sapphire wafer so that the sapphire wafer has a first designated thickness;

(b) lapping the rear surface of the ground sapphire wafer so that the sapphire wafer has a second designated thickness smaller than the first designated thickness;

(c) dry-etching the rear surface of the lapped sapphire wafer so that the sapphire wafer has a uniform thickness and a processing stress of the rear surface of the dry-etched

BEST AVAILABLE COPY**Application No.: 10/810,634****Docket No.: 2336-256**

sapphire wafer is maintained at a designated level; and

- (d) scribing the rear surface of the dry-etched sapphire wafer with a diamond tip;
wherein

said dry-etching is performed after said lapping without a polishing process between said lapping and said dry-etching;

after said lapping, the rear surface of said lapped sapphire wafer includes at least one scratch; and

said dry-etching is performed to reduce a depth of said at least one scratch, without completely removing said at least one scratch, thereby maintaining a processing stress of the rear surface of the dry-etched sapphire wafer at a sufficiently high level that facilitates cutting of said rear surface of the dry-etched sapphire wafer with the diamond tip in said scribing step.

16. (new) The method as set forth in claim 15, wherein said dry-etching is performed to change said at least one scratch to a shallower scratch having a blunter shape, without completely removing said at least one scratch.

17. (new) The method as set forth in claim 15, wherein said lapping comprises using a diamond slurry having a particle size of 6 μ m.

18. (new) The method as set forth in claim 17, wherein a processing stress of the rear surface of the dry-etched sapphire wafer is higher than a processing stress obtainable by a polishing process using a particle size of 3 μ m, thereby facilitating cutting of said rear surface of the dry-etched sapphire wafer with a diamond tip in said scribing step.